wireless RERC

Rehabilitation Engineering Research Center for
Wireless Technologies

VIA ECFS

May 16, 2007

Marlene H. Dortch, Secretary
Office of the Secretary
Federal Communications Commission
445 12th Street, S.W.
TW-A325
Washington, D.C. 20554

Re: *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, GN Docket No. 07-45*

Dear Ms. Dortch:

Enclosed for filing in the above referenced notice of inquiry, are comments of the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC).

Should you have any questions concerning this filing, please do not hesitate to contact me via phone (404-385-4618) or e-mail (paul.baker@cacp.gatech.edu).

Respectfully submitted,

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Enclosure

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Inquiry Concerning the Deployment	)	
Of Advanced Telecommunications	)	
Capability to All Americans in a	)	GN Docket No. 07-45
Reasonable and Timely Fashion, and	)	
Possible Steps to Accelerate Such	)	
Deployment Pursuant to Section 706	)	
Of the Telecommunications Act of	)	
1996	)	

COMMENTS OF THE
REHABILITATION ENGINEEERING RESEARCH CENTER FOR
WIRELESS TECHNOLOGIES (WIRELESS RERC)[1]

The Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC), hereby submits the following comments in response to the Notice of Inquiry adopted on March 12, 2007, GN Docket No. 07-45 on Section 706 of the Telecommunications Act of 1996 (the 1996 Act).

The Wireless RERC is a research center focused on promoting equitable access to and use of wireless technologies by people with disabilities, exploring their innovative applications, and encouraging the application of universal design practices in future generations of wireless technologies.

[1] The **Rehabilitation Engineering Research Center for Wireless Technologies** is sponsored by the National Institute on Disability and Rehabilitation Research (NIDRR) of the U.S. Department of Education under **grant number H133E060061**. The opinions contained in this paper are those of the authors and do not necessarily reflect those of the U.S. Department of Education or NIDRR.

The Wireless RERC commends the FCC for its efforts to ensure that it develops a robust, comprehensive and inclusive understanding of the deployment of broadband capability to all Americans, particularly those with disabilities. Currently it is estimated that more than 18% of the population has some type of disability[2] including 18.6 million with visual disabilities[3], 28 million with severe hearing loss[4] and 25 million with physical disabilities that impinge on mobility[5]. Further approximately 35 million (12.4% of total population) are over the age of 65 and that population is expected to double by 2030. People with disabilities are estimated to have over $175 billion in discretionary spending power[6]. Clearly these populations are impacted by technological trends and have an impact on the marketplace.[7]

We note that the use of advanced telecommunications to create new jobs, and flexibility in the workplace[8] increases opportunities for people with disabilities to more fully participate in the workplace. Further, we agree that advanced communications networks, including wireless broadband technologies, offer significant possibilities for telemedicine to improve healthcare[9], and wish to add that this is especially critical to people with disabilities who might otherwise be unable to fully benefit from healthcare innovations. In general, while a wide variety of advanced wireless technologies and services have become available in the U.S., significant issues involving access to, and affordability of, these technologies still exist for people with disabilities.

Specifically we wish to comment on the following paragraphs:

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[2] National Council on Disability/Harris Survey Documents Trends Impacting 54 Million Americans. 2004.
[3] NFPA, Fraser, Allan B. (May/June 2007). Simplifying the Accessibility (Disability) Myth. 2005.
[4] Mitchell, 2006.
[5] U.S. Census Bureau, 2002.
[6] U.S. Department of Justice, "Reaching out to customers with disabilities" 2006.
[7] Wireless RERC, Survey of User Needs, 2006.
[8] (¶2)
[9] (¶4)

"To what extent is mobility important to consumers when considering broadband alternatives? How has the development of new broadband technologies like wireless affected the marketplace evolution?" (¶12)

The desirability of maintaining access to communications and information in an unrestricted manner is evidenced by the expanding array of devices and networks designed to provide widespread connectivity unlimited by the constraints of "hard-wired' modes. Further, the increased interest in deployment of alternative broadband (WiFi) networks by municipal entities suggests that there is both the demand and the need to ensure inclusive access to all Americans. Research conducted by the Wireless RERC suggests additionally that wireless broadband devices, while increasingly available, are often designed in a manner which do not always take into account the needs and capacities of people with disabilities[10].

We believe that heightened awareness on the part of service providers, manufacturers, and designers of the specific needs of people with disabilities will increase the accessibility and availability of broadband connectivity and therefore increase the participation of this frequently underserved population. Further, with respect to deployment of municipal WiFi networks, preliminary findings of research by the Wireless RERC suggests that while deployment of these networks are a valuable alternative for the delivery of connectivity, there is a lack of consideration of the needs of people with disabilities, thereby potentially limiting their access.[11]

[10] Rehabilitation Engineering Research Center on Mobile Wireless Technologies. (2003). "Policy and Regulatory Assessment: Key Issues, Barriers, and Opportunities for People with Disabilities." Atlanta: Wireless RERC, 2003; and Wireless RERC. (2006) "Increasing access to wireless technologies: Results of a Wireless RERC Delphi Poll." Atlanta, GA: Center for Advanced Telecommunications Policy (CACP), Georgia Institute of Technology.

[11] Baker, Paul M.A. and Avonne Bell. (2007). "Accessibility in Municipal Wireless Networks: An Assessment of System Policies and Potential Barriers for People with Disabilities." Wireless RERC and Center for Advanced Communication Policy (CACP), Georgia Institute of technology, Atlanta, GA.

"Are certain technological developments likely to be particularly beneficial to specific groups of customers, such as rural customers or customers with disabilities?" (¶21)

High speed wireless data technologies, such as EV-DO, WCDMA/HSDPA, and WiMAX, offer the opportunity for widespread availability of Video Relay Service (VRS) for the deaf and persons with hearing impairments. These technologies have the potential to bring wireless communications closer to the "functional equivalency[12]" mandated under the Americans with Disabilities Act (ADA), however, they generate a number of issues for the Commission to address. For instance, would wireless Video Relay Service be a mandated relay service; if not then what alternative modes of deployment would be possible? Would the cost of implementing and maintaining VRS be a reimbursable expense under the Intrastate fund or the Interstate fund, and what charges would be allowable for reimbursement? Providing functional equivalency to wireless devices through advanced relay services also raises issues related to access of emergency communications, particularly E911 systems. Current FCC rules suggest that calls to E911 be placed from a TTY. However, in an increasingly mobile and IP enabled world, fewer and fewer persons with speech or hearing impairments have immediate access to a TTY, thus the need for the FCC to give some consideration to an expanded array of allowable devices.

Finally, the Wireless RERC is concerned that the consequential growing demand for trained relay operators at relay centers, if un met, represents a significant hurdle to efficacious implementation.

[12] Functional equivalency is defined in Title IV of the Americans with Disabilities Act, 47 U.S.C. § 225 as services "that provide the ability for an individual who has a hearing impairment or speech impairment to engage in communication by wire or radio with a hearing individual in a manner that is functionally equivalent to the ability of an individual who does not have a hearing impairment or speech impairment to communicate using voice communication services by wire or radio."

One technical hurdle that will require close cooperation between PSAP's, service providers and equipment manufacturers is the necessity of being able to geographically locate users of IP-based mobile devices. Since industry has yet to completely provide E911 location services to mobile phone users, which can create problems for dispatchers attempting to respond to an emergency situation,[13] the locational component of IP-based devices represents an additional significant issue that warrants the Commission's monitoring and guidance.

Technologies such as WiMAX, FTTH, and BPL have the potential to increase competition in the broadband access market. These lower costs for broadband will be particularly important for persons with disabilities, many of whom are underemployed[7] and for whom increased access to advanced communication technologies can provide additional venues for workplace accommodations.[14]

In the *Fourth Report*,[15] the Commission specifically considered the availability of advanced services for several groups of consumers, including businesses, residential consumers, rural communities, elementary and secondary students, low-income customers, minority consumers, and persons with disabilities.31 Should we separately examine these specific categories in this inquiry? (¶24)

Each of these groups has unique characteristics and specific needs that merit special consideration. Many advanced technologies routinely used by businesses are designed for

[13] APCO Project LOCATE (2007), "Final Report of the LOCATE effort to Assess the Location Data delivered to the PSAP with Wireless Enhanced 911 (E911) calls"
[7] 2005 Disability Status Report, StatsRRTC, http://www.ilr.cornell.edu/edi/publications/StatsRRTC2006Conference/2006StatsRRTC_1.2.ppt
[14] 2005 Disability Status Report, StatsRRTC,
[15] (*Fourth Report,* 19 FCC Rcd at 20569-76).

technologically adept users, and for those with more specialized requirements than advanced technologies used by the general consumer population[16]. This is exacerbated for the 52.1 million Americans with disabilities that face the "disability divide" a special case of the recognized digital divide.[17] Notwithstanding the widespread adoption of advanced communication technologies, people with disabilities, and other individuals with function limitations, such as the aging, have been effectively excluded, not as much by active intent as by inadvertent oversight and lack of awareness, and hence, frequently inaccessible to individuals with disabilities. Given the key role of public/private sector actors in directly shaping, and indirectly influencing the deployment of and access to these technologies, it would be prudent for the FCC to separate and catalogue the impacts of broadband deployment on this vulnerable population.

"To what extent do persons with disabilities have access to advanced telecommunications?" (¶29)

Barriers to the use of advanced telecommunications for persons with disabilities tend to fall into three broad categories: economic barriers, awareness and proficiency factors, and technologically related barriers, such as incompatibilities between technologies; and specifically into issues of cost and usability. Persons with all levels of abilities responding to the Wireless RERC's Survey of User Needs (SUN) (2002-2007) commented repeatedly on the difficulties of using advanced telecommunications devices.[18] Equally important however, the survey showed that the percentage of wireless subscribers among people with disabilities was similar to that

[16] Ward, A.C. and Baker, P.M.A. (2005). Disabilities and Impairments: Strategies for Workplace Integration. *Behavioral Sciences & the Law*, 23(1)
[17] Wireless RERC (2003), "Policy and Regulatory Assessment: Factors Influencing Adoption of Wireless Technologies: Key Issues, Barriers and Opportunities for People with Disabilities." Atlanta, GA: GCATT, Georgia Institute of Technology
[18] Wireless RERC (2006), "Results of the Survey of User Needs" [http://www.wirelessrerc.gatech.edu/projects/research/r1.html]

among the general population and that they comprised a significant portion of wireless subscribers, along with their network of friends and family. Despite the difficulties they may encounter in using them, advanced telecommunications devices are considered critical to people with disabilities to provide communications, and access to medical and emergency care.

"We also seek information about consumers of advanced services. How integral have advanced services become to these consumers?" (¶34)

Through its SUN, the Wireless RERC has detected clear patterns of lower use based on the cost of using these devices (specifically advanced wireless devices) where monthly charges are significantly higher for the more advanced services used.

For instance, deaf consumers, and the hard of hearing, make up a significant portion of the population of consumers of Video Relay Services. These services are typically provided over wired, broadband connections, and are the closest to meeting the "functional equivalency" requirement mandated under ADA. As noted above, current usage of advanced wireless services in particular provide the opportunity for increased mobility, independence and security to people with disabilities, and more ready access to services and technologies will further reduce barriers to increased engagement in society.

Existing advanced telecommunication services allow people with disabilities to more fully participate in community life, and these services have enriched the lives of countless Americans with disabilities. Increased deployment of new services, and access to cost-effective

advanced telecommunications services will only further the goals of accessibility set forth by Congress, the Commission, the Americans with Disabilities Act, and President George W. Bush's New Freedom Initiative.

Respectfully submitted,

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Dated this 16th day of May 2007